

10/566,620

REMARKS

Upon receipt of this response, the Examiner is respectfully requested to contact the undersigned representative of the Applicant to arrange a telephone interview concerning the inventive merits of this application.

The present Response After Final Office Action Pursuant To 37 CFR 1.116 is submitted in response to the Final Official Action mailed June 16, 2010. The Applicant respectfully requests entry of the following before reconsideration of this application, in order to place the present Application in order for appeal, should the same prove necessary.

Rejections and Amendments Under 35 U.S.C. 112

Claims 23-32 and 32-36 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons noted in the official action. The Applicant acknowledges and respectfully traverses the raised rejections in view of the following remarks.

The Examiner objects to the recitation of "a predetermined threshold speed determined by a current transmission ratio," in claims 23, 34 and 36, as being unclear under 35 U.S.C. 112 as to whether the "current transmission ratio" refers to a transmission ratio before or after the first downshift. In response, claims 23, 34 and 36 are amended to clarify that, in accordance with the invention as described in the specification and shown in the drawings, the "current transmission ratio" refers to the lower transmission ratio or gear, namely, the transmission ratio or gear in effect *after the downshift* from the higher transmission ratio or gear, and is thereby the transmission ratio or gear that would be in effect if the transmission were to be engaged after the downshift.

It will be noted that claims 23, 34 and 36 are also amended by eliminating the redundant recitations that the clutch is "located between the automatic transmission and the vehicle engine" thereby the simplify the claims and eliminate redundant language therefrom.

The Examiner also objects to the statement "terminating the first downshifting operation without engagement of the clutch, located between the vehicle drive motor and the transmission, if the speed of the vehicle is below the predetermined threshold speed," in paragraph (b2) of claims 23 and 34, as being unclear under 35 U.S.C. 112 since the clutch was already disengaged when carrying out the first downshifting operation. In response, claims 23

10/566,620

and 34 are amended to clarify that the clutch is *maintained in the disengaged state*, as recited in paragraph (a) of claims 23 and 34. However, this amendment is offered solely to advance prosecution of the present application to allowance by accommodating the Examiner's concerns as it is the Applicant's belief that it would be clear to anyone, of ordinary skill in the relevant arts, that terminating the first downshifting operation without engagement of the clutch, does not conflict with and is, in fact, physically and logically completely equivalent to "terminating the first downshifting operation without engagement of the clutch" since the clutch is already engaged. Stated another way, performing an action, such as terminating a downshifting operation, while electing not to engage a disengaged clutch is the same as not engaging an already disengaged clutch while performing that action. These amendments do not comprise any form of admission to or agreement with the Examiner's definition and interpretation of the terms in question.

The Examiner similarly rejects claim 24, under 35 U.S.C. 112, on the grounds that the method step recited therein appears to be in conflict with method step (b1) of claim 23, which requires the clutch to be engaged. In response, claim 24 is amended to clarify and make explicit that the method step of claim 24 pertains to method step (b2) of claim 23, and not to method step (b1) of claim 24, so that claim 24 now cannot be read as in conflict with claim 23.

The Examiner further states, with respect to claims 23, 34 and 36, that "the predetermined threshold speed appears to contradict the ordinary definition of the term "coasting"...since the predetermined threshold speed also includes the speed of zero or stationary condition." The Examiner further states that "[f]or purposes of applying the art of rejection, examiner interprets the term "coasting" to include the speed of zero or a stationary condition". The Applicant respectfully disagrees with the Examiner's interpretation of the terms "predetermined speed" and "coasting" and the Examiner's attempt to interpret these terms as including zero speed, or the vehicle being in a stationary condition.

Even a cursory reading of, for example, paragraphs [016]-[024] indicates that "coasting" is clearly described therein, both for purposes of the present invention and in agreement with the conventional meaning of the term, as the state in which the vehicle is in motion but where the clutch is disengaged and neither accelerative force nor braking force is being applied to the vehicle via the clutch or the vehicle brakes. A cursory review of any of a number of dictionaries

10/566, 620

likewise reveals that the commonly understood definition of "coasting" is to move without any propulsive or braking force being exerted to alter the motion. It is therefore clear that all commonly accepted definitions of the term "coasting" refer to being in a state of motion, and not at zero speed or being in a stationary condition as alleged by the Examiner.

It is also clearly described therein, such as at paragraphs [016]-[024] that a "predetermined speed" refers to any of a range of speeds in which the vehicle is coasting, that is, in motion, so that any "predetermined speed" must be a non-zero speed or else the vehicle would not be coasting. It is therefore the Applicant's position that the Examiner's interpretations of the terms "coasting" and "predetermined speed" are contrary to both the normal and accepted meanings of those terms as described in the specification of the present application and the commonly accepted general and dictionary definitions of the terms. It is therefore the Applicant's position that the Examiner's interpretations and applications of "coasting" and "predetermined speed" are not supported by the present application and are inconsistent with the commonly available published definitions of these terms and/or the common knowledge and understanding of those of ordinary skill in the relevant arts.

In response to the Examiner's objections to these terms, however, claims 23, 34 and 36 are amended to clarify that the a "predetermined speed" is any speed exceeding zero, as is clearly described in the specification of the present application. However, this amendment is solely offered to advance prosecution of the present application to allowance by accommodating the Examiner's concerns and do not comprise any form of admission to or agreement with the Examiner's definition and interpretation of the terms in question.

Lastly in this regard, it is noted that the Examiner states that the Examiner's interpretation of the terms "coasting mode," as created and applied by the Examiner, includes the stationary state, that is, a zero speed, for the purposes of applying the art rejections cited in the present Office Action. It is also noted that the Examiner does not explicitly or clearly state how this definition is used to apply the cited prior art, so that the Examiner's application of this definition is in itself unclear and indefinite and, consequently, difficult to address.

It is clear that however the Examiner applies the advanced definitions of the terms "coasting" and "predetermined speed", the amendments to claims 24, 34 and 36 to eliminate

10/566,620

zero speed, that is, the stationary state, from the range of predetermined speeds and also invalidate the Examiner's application of the cited art against claims 24, 24 and 36 insofar as those rejections are based on the Examiner's interpretations of "coasting" and "predetermined speed".

Finally with respect to the rejections of the claims under 35 U.S.C. 112, it will be noted that the above discussed amendments to the claims are fully supported by the specification, the drawings and/or the claims, as originally filed, and do not add any new matter to or alter the subject matter of the invention, the specification, the drawings or the claims. The Applicant therefore respectfully requests that the Examiner reconsider and withdraw all rejections of the claims, under 35 U.S.C. 112, and allow the claims as amended herein above.

Rejections Over Cited Prior Art

Next considering the Examiner's rejections of the claims over the cited prior art, the Examiner again rejects claims 23-32 and 34-36, under 35 U.S.C. § 103, as being unpatentable over Hawarden et al. '474 (6,231,474)—which has been previously cited in the preceding Office Actions and distinguished over in number of Responses—in view of Abusamra et al. '495 (2004/0106495 A1), which is newly cited. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the above amendments and the following remarks.

The Present Invention

First considering the present invention as recited in independent claims 23, 34 and 36, and as thereby recited in all claims dependent therefrom, the present invention relates to a method of operating an automatic transmission of a motor vehicle having a clutch located between a drive motor and the transmission.

As recited in claim 23, the steps of the method begin with the clutch disengaged and the vehicle in a coasting mode, at which point a downshifting operation is performed in which the transmission is shifted from a first, higher transmission gear ratio to a second, lower transmission gear ratio. The downshifting operation is then terminated by either: (1) engaging the clutch, if the speed of the vehicle is above a predetermined threshold speed, that is

10/566,620

determined by the second transmission gear ratio, or (2) by maintaining the clutch in the disengaged state if the speed of the vehicle is below the predetermined threshold speed.

Claim 34 includes essentially the same basic steps as claim 23, but further includes the steps of (1) carrying out a second downshifting operation of the automatic transmission by disengaging the clutch if the vehicle speed continues to decrease by either (a) downshifting from the lower gear to a first next lower gear in the automatic transmission and terminating the second downshifting operation by engaging the clutch, if the speed of the vehicle is above the predetermined threshold speed, so that engine compression influences the vehicle or (b) terminating the second downshifting operation while maintaining the clutch in the disengaged state if the speed of the vehicle is below the predetermined threshold speed, and by determining whether the driver desires a positive drive torque and, if so, terminating the second downshifting operation by engaging the clutch.

Claim 36 in turn again includes the basic recitations of claim 23 and further includes the steps of determining if the speed of the vehicle continues to decelerate and, if so, disengaging the clutch, if the clutch is engaged, performing a second downshift from the next lower transmission gear ratio to a second next lower transmission gear ratio, and either re-engaging the clutch with the second next lower transmission gear ratio to terminate the second downshift if a speed of the vehicle is above the predetermined threshold speed or maintaining the clutch in the disengaged state with the second next lower transmission gear ratio to terminate the second downshift if a speed of the vehicle is below the predetermined threshold speed.

It is a purpose of the present invention, as stated in paragraph [013], to provide a method for control of an automatic transmission by which a subsequent immediate continuation of travel is always achieved with an appropriate gear stage of the transmission without having to take into consideration the disadvantage of excessive motor torque at low driving speeds or high transmission ratios in low gear stages. More specifically, and as discussed in the Responses to the Official Action of February 27 and Final Official Action of July 24, 2009, the present invention, as recited in independent claims 23, 34 and 36, is directed to a method for operating an automatic transmission of a motor vehicle when the transmission is in a coasting mode and in anticipation of the driver's desires upon exiting the coasting mode and, in

10/566,620

particular, to a method for executing a downshift with an automatic clutch, when the transmission is in the coasting mode without any engine braking. As recited in claims 23, 34 and 36, the method of the present invention for executing automatic transmission downshift, when the transmission is in a coasting mode, includes the steps of: (a) *carrying out a first downshifting operation during a coasting mode without any engine braking*. Depending upon the speed of the vehicle after the completion of the downshift, one of (b1) *terminating the first downshifting operation by engagement of the clutch if a speed of the vehicle is above a predetermined threshold speed*; or (b2) *terminating the first downshifting operation without engagement of the clutch if the speed of the vehicle is at or below the predetermined threshold speed*. With the clutch disengaged and with a downshift occurring at a speed less than the predetermined threshold speed, this ensures that no brake torque will be generated by the drive engine in view of engaging a low transmission gear stage(s).

To reiterate and emphasize, the downshifting method of the present invention is initiated and performed only when the vehicle is initially in a *coasting mode*, that is, when the engine is not driving the wheels of the vehicle and the vehicle is not being braked in any manner, e.g., either by applying the conventional brake(s) or utilizing any engine braking. Further, depending upon the vehicle speed following completion of the downshift, the clutch is either engaged (*if a speed of the vehicle is above a predetermined threshold speed*) and remains disengaged (*i.e., if the speed of the vehicle is generally at or below the predetermined threshold speed*).

In summary, the present invention is directed to a method for downshifting a transmission by one or more transmission gear ratios while the vehicle is coasting (*i.e.*, in motion and not stationary), that is, it not being propelled or accelerated by the engine or braked by the vehicle brake(s) or engine. The downshifting operation is begun with the clutch disengaged and the action by which the downshift is terminated is dependent upon whether the vehicle is at, above or below a predetermined speed that is dependent upon the gear ratio that would be in effect when the downshifting operation is terminated. If the vehicle is above the predetermined speed, that is, the transmission ratio would result in engine braking, the clutch is engaged with the transmission ratio in effect at that time. If the vehicle speed is below the predetermined speed, the clutch remains disengaged.

10/566,620

Hawarden et al. '474

Next considering the prior art cited by the Examiner, and first considering the teachings of Hawarden et al. '474, it is noted that Hawarden et al. '474 was cited by the Examiner in the several preceding Office Actions and was distinguished over by the Applicant in each of the preceding Responses. In summary, and as discussed in the preceding Responses, while Hawarden et al. '474 describes a method to change downshift points in an automatic transmission and mentions engine and vehicle braking effects, Hawarden et al. '474 does not teach or suggest in any way or any method for altering the behavior of a clutch between the engine and transmission during downshift operations.

Considering Hawarden et al. '474 and the fundamental distinctions between the present invention and Hawarden et al. '474 in further detail, as discussed in the previous Responses Hawarden et al. '474 relates to and describes a method for controlling the engine speed at which an automatic transmission performs downshifts when, and only when, the engine brake is engaged, that is, when the engine to transmission clutch is engaged slowing the vehicle or when both the engine brake and the foot brake are both engaged.

It is therefore apparent that there are a number of fundamental and patentable distinctions between the present invention, as recited in claims 23, 34 and 36 and in the associated dependent claims, and the teachings and suggestion of Hawarden et al. '474. For example, the presently claimed invention is fully distinguished over and from the teachings and suggestions of Hawarden et al. '474 because the method of the present invention requires the vehicle to be in a *coasting mode, not an engine braking mode of operation*. In complete contrast from the present invention as recited in the claims, the Hawarden et al. '474 method allows a downshift to be initiated and performed when and only when the driver is either using engine braking or engine braking in combination with a foot brake, which requires that the clutch, located between the engine and transmission, be engaged during the period immediately before a downshift. The Hawarden et al. '474 method, therefore, is either accelerating or employing engine braking and thus does not even contemplate a coasting mode per se, let alone a coasting mode according to the present invention in which the engine is not driving the wheels of the vehicle and the vehicle is not being braked in any manner, e.g., either

10/566,620

by applying the conventional brake(s) or utilizing engine braking and, as a consequence of such coasting mode of operation, engine braking (or any conventional braking) is not occurring.

Further in this regard, the Examiner refers to column 4, lines 29-37 of Hawarden et al. '474 as disclosing performing a downshift to maximize engine brake when the vehicle is descending/coasting down hills. The Examiner states that the Hawarden et al. '474 method performs a downshift to maximize engine braking when descending a hill. If, however, a downshift is performed to maximize engine braking when descending a hill, then the vehicle must be in an engine braking mode when descending the hill—not a coasting mode—which means that a clutch between the engine and transmission must be *engaged* (not disengaged as with the presently claimed invention) to provide the facilitate the desired engine braking. It is respectfully submitted that the vehicle, therefore, cannot be in a coasting mode—as required by the presently claimed invention—because the coasting mode requires that the engine not be driving the wheels of the vehicle and the vehicle not be braked in any manner, e.g., either by utilizing engine braking or applying the conventional brake(s). It is to be appreciated that the presently claimed coasting mode specifically means that the engine cannot be providing engine braking—the claims now specifically recite a *coasting mode without any engine braking*.

As noted in the previous Responses, the Examiner's statements, as worded, seem to contradict the Examiner's conclusion. Turning specifically to column 3, line 21 through column 4, line 51 of Hawarden et al. '474, which includes the portion of Hawarden et al. '474 cited by the Examiner together with the context of the statements from Hawarden et al. '474 that were selected by the Examiner, Hawarden et al. '474 describes the downshift control as follows, with emphasis being added by the Applicant where appropriate:

The downshift control of the present invention to provide enhanced vehicle retardation in response to sensed actuation of the engine brake and/or engine and foot brake systems may be seen by reference to FIG. 2. FIG. 2 is a graphical representation of shift point profiles utilized to determine when shift commands should be issued by the ECU 28 to the shift actuator 52. Solid line 60 is the default upshift profile, while solid line 62 is the default downshift profile. As is known, if the vehicle is operating to the right of upshift profile 60, an upshift of transmission 14 should be commanded, while if the vehicle is operating to the left of downshift profile 62, a downshift should be commanded. If the vehicle is operating in between profiles 60 and 62, no shifting of the transmission is then required. At or below a certain engine speed, ESD/S, a downshift will be commanded. As is discussed in detail in aforementioned U.S. Pat. No. 4,361,060, the shift profiles may be modified or moved in response to certain sensed vehicle operating conditions to provide enhanced drive line

10/566,620

performance. To provide enhanced vehicle retardation, the downshift profile (i.e., the engine speed ESD/L at which downshifts are commanded) is moved, as will be discussed in detail below.

Upon sensing manual actuation of the engine brake 46, the system will react to force an early downshift by shifting the downshift profile rightwardly (i.e., increasing the engine speed at which a downshift will be commanded), thereby increasing the speed of the engine upon completion of a downshift). In the example illustrated in FIG. 2, if operation of the engine brake EB is set and/or operation of the engine brake and operation of the foot brake system is set, the downshift profile will be shifted rightwardly, as indicated by shift profile 66. Shift profile 66 will result in an earlier downshift and a relatively elevated engine speed at completion of the forced downshift. By way of example, at lower throttle position values, if the default downshift value is about 950 RPM, the forced downshift value of profile 66 will be about 1300-1400 RPM.

If engine braking but not foot braking is set, upon forcing a downshift, the control will command a downshift to bring engine speed to about 1400-1700 RPM; if engine braking and foot braking are set, the control will command a downshift to bring engine speed to between about 1700-2000 RPM. Operating at such elevated engine speeds will result in enhanced engine brake effectiveness in retarding the speed of the vehicle.

If engine braking but not foot braking is set and vehicle speed is above a given value (i.e., about 30 MPH), after a forced downshift (i.e., a downshift from profile 66), the downshift profile will return to the default value 62 thereof. If engine braking but not foot braking is set and vehicle speed is below the set value (i.e., OS<REF), then the downshift profile is caused to assume a profile value 64 intermediate default profile 62 and the forced downshift profile 66. By way of example, if at lower throttle positions the default profile 62 value is about 950 RPM and the forced downshift profile 66 value is about 1300-1400 RPM, then the value on profile 64 will be about 1100 RPM.

If engine braking and foot braking both are set, the forced downshift profile 66 will remain effective. If the engine brake is activated, the system raises the downshift point to approximately 1300-1400 RPM (the value is two ratio steps down from the maximum engine speed). The downshift made under these conditions, if any, brings the engine speed to between 1400-1700 RPM, allowing the driver a moderate level of engine braking.

If the engine brake is pressed and the foot/service brake is pressed, or if the two are pressed together, then the system will raise the downshift point to approximately 1300-1400 RPM. The system will make a downshift, if necessary, to bring the engine speed to between 1700-2000 RPM to give a maximum level of engine braking. As the vehicle slows down, it will downshift again when it reaches the raised downshift point (1300-1400 RPM) and make a skip downshift to bring the engine speed up to approximately 2000 RPM.

As long as the driver keeps his foot on the engine brake (he may release the foot brake if he wishes), the system will remain in this state. While in this mode, if the driver removes his foot from the foot brake, the system will remain in this mode. If the driver then reapplies the foot brake while maintaining the engine brake on, the system will make a downshift if possible (usually a single) to raise the engine speed as high as possible. This assists in maximizing engine brake performance when descending hills.

In summary, there are two enhanced braking states, engine-brake-only and engine-brake-plus-foot-brake. Engine-brake-only gives moderate engine speeds and a moderate level of engine braking (single shifts, skips at lower vehicle speeds). Engine-brake-plus-foot-brake gives higher engine speeds for a maximum level of engine braking (skip shifts, though the first shift may be a single to get it into the 1700-2000-RPM range, for example, 1800-1900 RPM). The driver may switch between the two states very easily, for example, touching the foot brake while in engine-brake-only mode

10/566,620

changes to engine-brake-plus-foot-brake. Also, if the driver is in engine-brake-plus-foot-brake mode (foot off foot brake) and briefly releases the engine brake, he will revert to engine-brake-only mode."

It is therefore apparent from consideration of the entire disclosure by Hawarden et al. '474, that the Hawarden et al. '474 method requires that *engine braking be applied*, that is, that the clutch between the engine and transmission must be engaged so that the engine can be utilized to slow the speed of the vehicle. It is also apparent that if the vehicle is in an engine braking mode of operation, the vehicle thus cannot be in a *coasting mode* which, by all commonly accepted definitions and understanding of the term "coasting", requires that the engine is not driving the wheels of the vehicle and the vehicle is not being braked in any manner, namely, either by utilizing engine braking or applying any conventional brake(s).

The present invention as recited in the claims presently under consideration, however, requires that the downshifting method be initiated and performed when, and only when, the vehicle is initially in a coasting mode, that is, the engine is not driving the wheels of the vehicle and the vehicle is not being braked in any manner, namely, either by utilizing engine braking or applying any conventional brake(s). It is therefore apparent that, instead of teaching or suggesting the present invention under the requirements and provisions of 35 U.S.C. 102 or 35 U.S.C. 103, the teachings of Hawarden et al. '474 are in direct opposition to and contradiction of the presently claimed invention.

It must be noted that the above discussed distinctions of the present invention over Hawarden et al. '474, under 35 U.S.C. 103 are explicitly recited in the claims. For example, the claims recite carrying out a first downshifting operation during a coasting mode of the automatic transmission from a first, higher gear to a second, lower gear and recite that the coasting mode is occurring "without any engine braking" to specifically exclude the possibility of engine braking somehow is included as part of the coasting mode of operation. In addition, each of the independent claims recite that the downshift is terminated by engagement of the clutch if a speed of the vehicle is above a predetermined threshold speed or is terminated without engagement of the clutch if the speed of the vehicle is below the predetermined threshold speed.

In addition, the present invention as recited in claims 23, 24 and 36, as well as the dependent claims, is still further distinguished over and from Hawarden et al. '474 because the method of Hawarden et al. '474 determines the downshift speed, that is, the speed at which a

10/566,620

downshift should occur, as a function of the engine speed, and whether the driver is using engine braking or the combination of engine braking with foot braking.

According to the present invention, and in distinct contrast to Hawarden et al. '474, the determination of whether or not a downshift is executed is a function of not only the vehicle speed but whether or not the vehicle is in a coasting mode or not in a coasting mode. The present invention is, therefore, fully independent of either engine braking and foot braking, while Hawarden et al. '474 does not even mention or consider whether the vehicle is in a coasting mode or not.

In this regard, the Applicant notes that the Examiner apparently concurs with at least an essential part of the Applicant's above discussions regarding the distinctions between the present invention as recited in the claims and the teachings of Hawarden et al. '474 because the Examiner explicitly states that "Hawarden,...does not explicitly state that the first downshifting operation is carrying out during a coasting mode without any engine braking" (Examiner's emphasis).

While the Applicant agrees with the Examiner's stated conclusion regarding the teachings of Hawarden et al. '474, it is apparent that the Examiner is ignoring and/or neglecting to consider the further distinctions between the present invention, as recited in the claims, and the teachings, suggestions, disclosures and/or hints of Hawarden et al. '474 that have been discussed above.

It is therefore apparent that the present invention, as recited in claims 23, 34 and 36 and thus in the associated dependent claims, is, for at least the reasons discussed above, completely and fully distinguished over and from the teachings of Hawarden et al. '474 under the requirements and provisions of 35 U.S.C. 103. The Applicant accordingly respectfully requests that the Examiner reconsider and withdraw all rejections of the claims over the cited prior art, and allow the claims as presented herein above.

Abusamra et al. '495

Next considering Abusamra et al. '495—which is a newly cited reference—the Examiner cites Abusamra et al. '495 as teaching a method for carrying out transmission gear shifting operations which the clutch is disengaged and without any engine braking, and states that it would be obvious to one of ordinary skill in the art to modify Hawarden et al. '474 according to Abusamra et al. '495 to thereby achieve the claimed invention.

10/566,620

Abusamra et al. '495 describes a vehicle system having an engine driving a transmission through a clutch with an electric motor capable of regenerative braking located downstream of the transmission to both drive the vehicle and to provide regenerative braking and wherein the vehicle's propulsion shifts between the engine and transmission and the electric motor, with the engine being turned off when the vehicle is being driven by the electric motor. Abusamra et al. '495 describes a method for controlling the transmission, and in particular for selecting a gear ratio of the transmission during regenerative braking by the electric motor and according to the vehicle speed, so that the engine can be restarted at a speed higher than a predetermined lower limit which is determined by the speed at which the engine can run by itself and which will provide a smooth transition from braking by the electric motor to propulsion by the engine when the clutch is engaged to allow the engine to drive the vehicle in place of the electric motor.

It is therefore apparent that there are a number of fundamental distinctions between the present invention, as recited in the claims, and the teachings of Abusamra et al. '495 and that, because of those distinctions, the present invention as recited in the claims is fully and patentably distinguished over and from the teachings, suggestions, disclosures and hints of Abusamra et al. '495 under the requirements and provisions of 35 U.S.C. 103.

For example, the method and system taught by Abusamra et al. '495 controls the gear ratio of the transmission according to the speed of the vehicle, and not the operation of the clutch as in the present invention, and Abusamra et al. '495 does not, in fact, teach or suggest controlling the operation of the clutch according to the speed of the vehicle.

In addition, Abusamra et al. '495 clearly and explicitly describes the taught steps as being carried out while the vehicle is undergoing braking by the electric motor, that is, regenerative braking, and that the system transitions into a state where the vehicle is being driven by the engine. It is therefore clear that—in direct and fundamental contrast from the present invention—the system and method taught by Abusamra et al. '495 do not operate while the vehicle is in a coasting mode wherein the engine is not driving the wheels of the vehicle and the vehicle is not being braked in any manner, namely, either by utilizing engine or motor braking or applying the conventional brake(s).

It is therefore apparent that the present invention as recited in claims 23, 34 and 36 and thus in the associated dependent claims is, for at least the reasons discussed above, completely and fully distinguished over and from the teachings of Abusamra et al. '495 under

10/566,620

the requirements and provisions of 35 U.S.C. 103. The Applicant accordingly respectfully requests that the Examiner reconsider and withdraw all rejections of the claims over the cited prior art, and allowance of the claims as presented herein above.

Examiner's Interpretation of "Coasting" and "Predetermined Threshold Speed"

As discussed above with regard to the Examiner's rejections of the claims under 35 U.S.C. 112, as noted above, the Examiner states with respect to claims 23, 34 and 36 that "the predetermined threshold speed appears to contradict the ordinary definition of the term "coasting"...since the predetermined threshold speed also includes the speed of zero or stationary condition."

The Examiner further states that "for purposes of applying the art of rejection, Examiner interprets the term "coasting" to include the speed of zero or a stationary condition". As noted above, the Examiner does not explicitly or clearly state how this definition is used to apply the cited prior art, so that the Examiner's application of this definition is in itself unclear and indefinite and, consequently, difficult to answer in detail.

The Applicant respectfully disagrees with the Examiner's interpretation of the terms "predetermined speed" and "coasting" and the Examiner's attempt to interpret these terms as including zero speed, or the vehicle being in a stationary condition. As noted above, even a cursory reading of, for example, paragraphs [016]-[024] shows that "coasting" is clearly described therein, both for purposes of the present invention and in agreement with the conventional meaning of the term, as the state in which the vehicle is in motion but where the clutch is disengaged and neither accelerative force nor braking force is being applied to the vehicle through the clutch or by the vehicle brakes. A cursory review of any of a number of dictionaries likewise reveals that the commonly understood definition of "coasting" is to move without any propulsive or braking forces being exerted to stop such motion. It is therefore clear that all commonly accepted definitions of the term "coasting" refer to being in a state of motion, and not at zero speed or being in a stationary condition.

It is also clearly described therein, such as at paragraphs [016]-[024] that a "predetermined speed" refers to any of a range of speeds in which the vehicle is coasting, that is, in motion, so that any "predetermined speed" must be a non-zero speed or else the vehicle is not coasting. It is therefore the Applicant's position that the Examiner's interpretations of the terms "coasting" and "predetermined speed" are contrary to both the normal and intended meanings of these terms as described in the specification of the present application and the

10/566,620

commonly accepted general and dictionary definitions of the terms. It is therefore the Applicant's position that the Examiner's interpretations and applications of "coasting" and "predetermined speed" are not supported by the present application, commonly available published definitions of these terms or the common knowledge and understanding of those of ordinary skill in the relevant arts.

As discussed above with regard to the rejections of claims under 35 U.S.C. 112, claims 23, 34 and 36 are amended to clarify that the a "predetermined speed" is any speed exceeding zero, as is clearly described in the specification of the present Application. As stated herein above, these amendments are offered solely to advance prosecution of the present Application to allowance by accommodating the Examiner's concerns and do not comprise any form of admission to or agreement with the Examiner's definition and interpretation of the terms in question.

It is clear, however, that regardless of how the Examiner applies the Examiner's definitions of the terms "coasting" and "predetermined speed" for the purposes of applying the art rejections cited in the present Office Action, the amendments to claims 24, 34 and 36 to eliminate the value zero, that is, the stationary state, from the range of predetermined speeds also removes the Examiner's application of the cited art against claims 24, 24 and 36 insofar as those rejections are based on the Examiner's interpretations of "coasting" and "predetermined speed".

Hawarden et al. '474 In View Of Abusamra et al. '495

It is clear from the above discussions of the fundamental distinctions of the present invention over the cited prior art, that is, Hawarden et al. '474 and Abusamra et al. '495, that neither Hawarden et al. '474 nor Abusamra et al. '495 in any way teaches control of a vehicle clutch according to the vehicle speed or control of the clutch during downshifting operations while the vehicle is in a coasting mode in which the engine or motor is not driving the wheels of the vehicle and the vehicle is not being braked in any manner, namely, either by utilizing engine or motor braking or applying the conventional brake(s).

Regardless, therefore, of whether the Hawarden et al. '474 and Abusamra et al. '495 could be properly combined with one another, with which the Applicant does not agree as the two systems are so fundamentally different in their mechanisms and modes of operation, any proper combination of the Hawarden et al. '474 and Abusamra et al. '495 references will not

10/566,620

and cannot teach, suggest, disclose or remotely hint at, under the requirements of 35 U.S.C. 103, controlling a vehicle clutch according to the vehicle speed or controlling the clutch during downshifting operations while the vehicle is in a coasting mode in which it the engine or motor is not driving the wheels of the vehicle and the vehicle is not being braked in any manner, namely, either by utilizing engine or motor braking or applying the conventional brakes.

It is therefore apparent that the present invention as recited in claims 23, 34 and 36 and thus in the associated dependent claims is, for at least the reasons discussed above, completely and fully distinguished over and from the teachings of Hawarden et al. '474 and Abusamra et al. '495 under the requirements and provisions of 35 U.S.C. 103. The Applicant accordingly respectfully requests that the Examiner reconsider and withdraw all rejections of the claims over the cited prior art, and allowance the claims as presented herein above.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejection(s) should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the Hawarden et al. '474 and/or Abusamra et al. '495 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

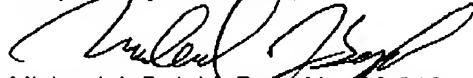
In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

10/566,620

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,



Michael J. Bujold, Reg. No. 32,018
Customer No. 020210
Davis & Bujold, P.L.L.C.
112 Pleasant Street
Concord, NH 03301-2931
Telephone 603-226-7490
Facsimile 603-226-7499
E-mail: patent@davisandbujold.com